U.S. Coral Reef Monitoring Project Survey

Part 1. Project Summary

Survey administered by: ASCH
Project ID:
Date Administered (dd-mo-yy): 24-Aug.-99

Project title: Long Term Research on a Coral Reef in St. John: Lack of Recovery Following Hurricane

Principal investigators

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Keywords (provide several keywords that describe project data):

ST. JOHN
HURRICANES
HERBIVORY
MACROALGAL GROWTH
HARD CORAL

Project Summary:

During the last seven years, hard coral cover decreased and algal growth increased on a reef in Virgin Islands National Park on St. John, U.S. Virgin Islands. In 1998, coral cover declined from about 20% to 13% as a direct result of Hurricane Hugo. By the time Hurricanes Luis and Marilyn struck St. John in September 1995, the amount of living coral cover on the reef was still at the level observed after Hugo. Macroalgal cover went from less than 5% before Hugo to over 21% within two months as the algae exploited new substrate opened up by the storm. Although fluctuating, macroalgal cover reached its highest level (31%) after Hurricanes Luis and Marilyn. The combination of hurricane damage and fishing pressure on this reef may cause further declines in coral and increase in algal cover, and the reef may never recover to its pre-Hugo condition. The dominant coral, *Montastraea annularis*, grows slowly and produces few recruits. Grazing by herbivorous fishes is not intense enough to control growth by macroalgae, which hinders coral regeneration and recruitment.

Spatial Coverage of Database

Spatial Coverage (briefly describe geographic extent of project):

This study was conducted in Little Lameshur Bay off of Yawzi Point. This bay is on the south side of St. John in Virgin Islands National Park. The reef studied in this project was located at a depth of 12m. Similar data are also available at Newfound Bay since 1990.

Geographic Extent (Bounding rectangle in decimal degrees);
North_____West_____South_____East_____

Are data aggregated into geographic units: [ ] yes [ ] no
Are data available in disaggregated form: [ ] yes [ ] no

How was spatial accuracy determined:
[ ] NOAA Nautical Chart [x] USGS Quad [ ] Loran [ ] County Road Map
[ ] Survey [ ] GPS [ ] Other:

Temporal Characteristics of Database

Temporal characteristics (brief narrative):

This site was surveyed 15 times over a period of 7 years. The dates of each sampling are as follows; January 1989, June 1989, November 1989, March 1990, August 1990, November 1990, June 1991, March 1992, November 1992, March 1993, November 1993, April 1994, October/November 1994, April 1995, and October 1995. This is an on-going project.

Period of Record:
Begin (d/mo/yr): January 1989 End (d/mo/yr): present

Sampling is: [x] Ongoing [ ] Planned [ ] Historic

Frequency of Sampling:
[ ] Hourly [ ] Daily [ ]Weekly [ ] Monthly [x] Annually [ ] Other

Sampling Interval:
[ ] Fixed [x] Intermittent

How is sampling recorded?
[ ] Automated [x] Non-automated

Data Parameters:

Specific Constituents/Parameters Sampled (include units):

PERCENT COVER BY BENTHIC COMPONENTS

Methodology:

Provide a short description about how monitoring data is gathered/acquired:

Five 20m transects were set up at a depth of 12m. The relative abundance of species and substrate types were quantified using a linear transect method.

On what basis were sites selected?

The reef was selected because it is protected by Virgin Islands National Park and Biosphere Reserve.

How are samples processed, stored, and archived in the field?

Not applicable.

How are samples processed, stored, and archived in the laboratory?

Not applicable.

What methods were used for sample analysis and quality assurance?

[ ] Data quality analysis

[ ] Chemical analysis

Describe any assumptions in assembling/acquiring monitoring data:

An assumption is that the changes which were observed reflect natural variation rather than anthropogenic stresses.

Describe the primary limitations with monitoring data:

One limitation is the small spatial coverage of the areas sampled. Another limitation is that it is possible that the method used to calculate the percent coral cover was not precise enough to detect changes after Hurricanes Marilyn and Luis because the coral cover in this area was quite low prior to these storms.

Database Characteristics:

Format:

[x] Digital [ ] Map
[x] Hardcopy (reports, data sheets, tables) [ ]Other_____

Status (check one):

[x] Database Available/Being Distributed [ ] Portions of Database Available
[ ] Data Not Available [ ]Other_____

Predominant Data Type:

[x] Numeric [ ] Qualitative

How is data stored (hardware & software):

Excel

Data Structure:

[ ] Discrete Points (sampling site) [x] Line/transect (e.g., shoreline, beach)
[ ] Polygon (watershed)

Data Completeness (check one):

[ ] Data clean [x] Data need minor work [ ] Data need major work [ ] Other: The data is not yet available.

Data Maintenance (check one):

[ ] No maintenance [ ] Intermittent maintenance [x]Periodic maintenance (fixed intervals)
[ ] Continuous maintenance [ ] Other: The data is not yet available.

Are the following elements in this database available for each sampling location (check all that apply)?

[x] Station Location (lat/long coordinates of site or areal unit)
[x] Frequency of Sampling (by station location)
[x] Constituents/Parameters Sampled (by station location)
[x] Period of Record

Use and Users:

How is data used?

[x] Research

[x] Monitoring

[ ] Planning

[ ] Management

[ ] Regulatory

Users (identify specific institutions):

[x] Federal Government: DOI

[ ] State Government

[ ] Local Government

[ ] Regional Entities

[x] Academic:

Data Availability:

On-line (describe how to access, i.e., bbs, Telnet, world wide web):

Some data are available on-line at the USGS internet site.

Off-line: (describe how to access):

Contact principal investigator.

Are costs associated with requests? [ ] yes [x] no
If yes, please explain:

Access constraints (describe briefly any constraints for accessing data set):

No.

Use constraints (describe briefly any constraints for using data set):

No.
